

WHAT IS CLAIMED IS:

1. An artificial disc implant for a human spine, comprising:
two engaging plates, wherein each engaging plate comprises:
5 a recess; and
two or more slots configured to engage an insertion instrument during insertion of
the disc implant, wherein the slots are at an angle relative to an anterior-posterior axis of
the engaging plates; and
one or more members positionable between the engaging plates, wherein at least one of
10 the members comprises a portion configured to complement at least one of the recesses to allow
axial rotation, lateral movement and anteroposterior movement of the engaging plates relative to
each other during use.
2. The implant of claim 1, wherein one or more sides of at least one of the recesses are
15 tapered.
3. The implant of claim 1, wherein a height of a posterior side exceeds a height of an
anterior side of at least one of the recesses.
- 20 4. The implant of claim 1, wherein the portion configured to complement at least one of the
recesses is a convex portion, and wherein at least one of the recesses comprises a concave
portion complementary to the convex portion.
5. The implant of claim 1, wherein at least one of the engaging plates comprises a convex
25 portion, wherein at least one of the members comprises a concave portion, and wherein the
convex portion is complementary to the concave portion.
6. The implant of claim 1, wherein the two engaging plates and the one or more members
are made of metal.
- 30 7. The implant of claim 1, wherein the slots are dovetailed.

8. A system for inserting an artificial disc implant between human vertebrae, comprising:
an inserter having a body, a passage through the body, and arms, wherein the arms are
configured to be releasably coupled to engaging plates of the artificial disc implant; and
5 a distractor positionable in the passage in the body, wherein the distractor is configured to
separate the arms of the inserter such that engaging plates coupled to the arms of the inserter
remain substantially parallel during separation of the engaging plates to form a disc space
between the human vertebrae.
- 10 9. The system of claim 8, wherein the inserter is configured such that coupling the inserter
to the engaging plates does not increase separation between the engaging plates.
10. The system of claim 8, wherein the arms of the inserter are configured to be releasably
coupled to dovetailed slots in the engaging plates.
- 15 11. The system of claim 8, wherein the inserter and the distractor are configured such that the
distractor does not contact the engaging plates during insertion of the engaging plates.
12. The system of claim 8, further comprising a pusher, wherein the pusher is configured to
20 drive a member through a passage in the distractor and position the member between the
engaging plates.
13. The system of claim 8, further comprising a member seater configured to seat a member
in the engaging plates through the passage in the inserter.
- 25 14. The system of claim 8, further comprising trial endplates and one or more additional
distractors, wherein the trial endplates are configured to be used in combination with the
distractors to determine height and lordotic angle of the artificial disc implant to be inserted.
- 30 15. A method for forming an artificial disc implant between human vertebrae, comprising:
positioning two engaging plates between the human vertebrae;

separating the engaging plates such that the engaging plates remain substantially parallel;
positioning one or more members between the engaging plates such that a surface of at
least one of the members contacts a complementary surface of at least one of the engaging plates;
and

5 wherein the engaging plates and at least one of the members are configured to allow
relative movement of the engaging plates during use.

16. The method of claim 15, further comprising determining a height, size and lordotic angle
of the artificial disc implant to be formed between the vertebrae before positioning the engaging
10 plates between the vertebrae.

17. The method of claim 15, further comprising forming a recess in at least one of the
vertebrae to engage a projection on at least one of the engaging plates.

15 18. The method of claim 15, wherein positioning at least one of the members comprises
positioning such members in a rounded recess in at least one of the engaging plates.

19. The method of claim 15, wherein the engaging plates are positioned using an angulated
anterior approach to the vertebrae.

20 20. The method of claim 15, wherein the engaging plates are positioned using an anterior
approach to the vertebrae.

21. A disc implant, comprising:
25 a first engaging plate and a second engaging plate;
 a member positionable between the engaging plates;
 wherein the first engaging plate comprises a recess configured to receive a base of the
member, wherein one or more sides of the recess are tapered; and
 wherein a surface of the second engaging plate complements a surface of the member to
30 allow axial rotation, lateral movement and anteroposterior movement of the engaging plates
relative to each other during use.

22. The implant of claim 21, wherein a height of a posterior side of the recess is greater than a height of an anterior side of the recess.

5 23. The implant of claim 21, wherein at least one of the engaging plates comprises a concave portion complementary to a convex portion of the member.

24. The implant of claim 21, wherein at least one of the engaging plates comprises a convex portion complementary to a concave portion of the member.

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25. The implant of claim 21, wherein at least one of the engaging plates comprises at least one coupling projection.

15 26. The implant of claim 21, wherein the engaging plates comprise one or more slots, wherein the slots are configured to engage an instrument for insertion of the implant.

27. The implant of claim 21, wherein the engaging plates comprise one or more slots wherein the slots are configured to engage an instrument for insertion of the implant and wherein the slots are positioned at an angle relative to anterior-posterior axes of the engaging plates.

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28. A system for inserting an artificial disc implant, comprising:

an inserter having a body, a passage through the body and arms, wherein the arms are configured to be releasably coupled to engaging plates of the artificial disc implant; and

25 one or more distractors positionable through the passage in the body, the distractors configured to move the arms to establish a separation distance between engaging plates coupled to the arms.

29. The system of claim 28, further comprising a pusher configured to drive a member down a passage through the distractor to a position between the engaging plates.

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30. The system of claim 28, further comprising a member seater configured to seat a member between the engaging plates.

31. The system of claim 28, further comprising trial endplates, wherein the trial endplates in combination with at least one distractor are configured to determine height and lordotic angle of the artificial disc implant to be inserted.

32. An instrument kit, comprising:

one or more trial endplates;

a plurality of implant components; and

an inserter configured to couple to selected implant components to allow the components to be positioned in a disc space;

one or more distractors configured to couple to the inserter to establish a separation distance between the selected implant components coupled to the inserter.

33. The instrument kit of claim 32, wherein the inserter is configured to couple to the trial endplates.

34. The instrument kit of claim 32, wherein one or more of the trial endplates are sloped.

35. The instrument kit of claim 32, further comprising a pusher configured to position an implant component between the selected implant components coupled to the inserter.

36. The instrument kit of claim 32, further comprising a member seater, wherein the member seater is configured to apply pressure to one of the implant components.

37. The instrument kit of claim 32, further comprising a pusher configured to position an implant component between the selected implant components coupled to the inserter.

38. A method for forming an implant between vertebrae of a spine, comprising:
coupling a pair of engaging plates to a portion of an inserter;

positioning the engaging plates between adjacent vertebrae;
positioning one or more members between the engaging plates; and
wherein at least a portion of the engaging plates and at least a portion of at least one
member is configured to allow at least some movement of a first vertebra relative to a second
5 vertebra.

39. The method of claim 38, wherein positioning the engaging plates comprises an anterior
approach to the vertebrae.

10 40. The method of claim 38, wherein positioning the engaging plates comprises an angled
anterior approach to the vertebrae.

41. The method of claim 38, further comprising positioning a distractor in the inserter
wherein the distractor is configured to separate in a substantially parallel direction one engaging
15 plate from a second engaging plate.

42. The method of claim 38, further comprising positioning a distractor in the inserter
wherein the distractor is configured to separate one engaging plate from a second engaging plate
and wherein positioning a member of the one or more members between the engaging plates
20 comprises guiding the member through the distractor with a pusher.

43. The method of claim 38, wherein the movement comprises at least axial rotation and
lateral movement of the spine.

25 44. The method of claim 38, further comprising inserting one or more trial implants and one
or more distractors in the vertebral space before coupling the engaging plates to the inserter to
determine a lordotic angle of the engaging plates and a height of the members to be inserted.

45. An instrument for insertion of a disc implant, comprising:
30 a body;
one or more arms configured to couple to one or more engaging plates;

a distractor positionable in an opening of the body, wherein the distractor is configured to separate in a substantially parallel direction one engaging plate from a second engaging plate.